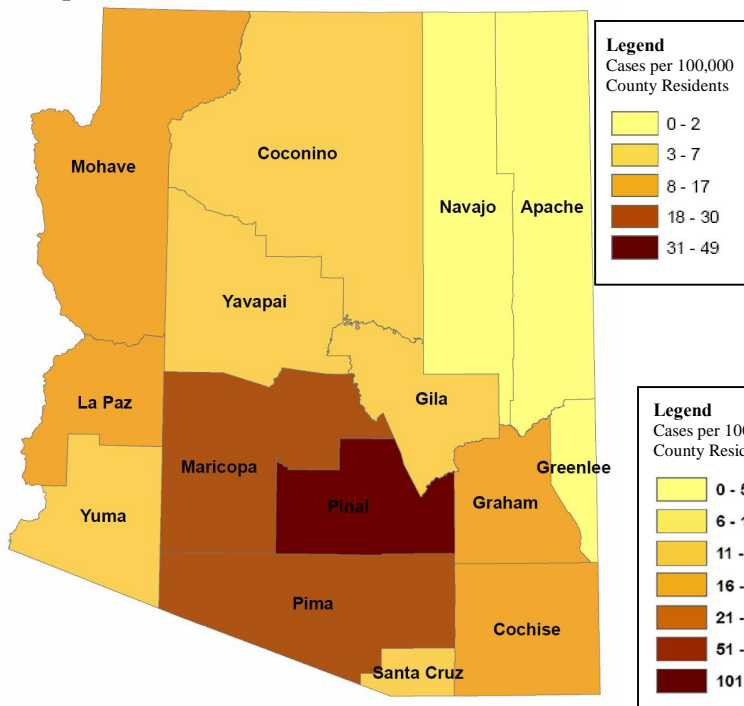


Summary:

For the year 2007, a total of 4832 valley fever (coccidioidomycosis) cases were reported from across all fifteen counties in Arizona. For the year-to-date 2008, 1901 valley fever cases have been reported to the state: 436 cases for the month of January, 410 cases for February, 308 cases for March, 334 cases for April, and 413 cases for May.

Valley Fever Activity by County:

Map 1. Valley Fever Incidence (1/1/2007-6/29/2007)



Map 2. Valley Fever Incidence, 2006

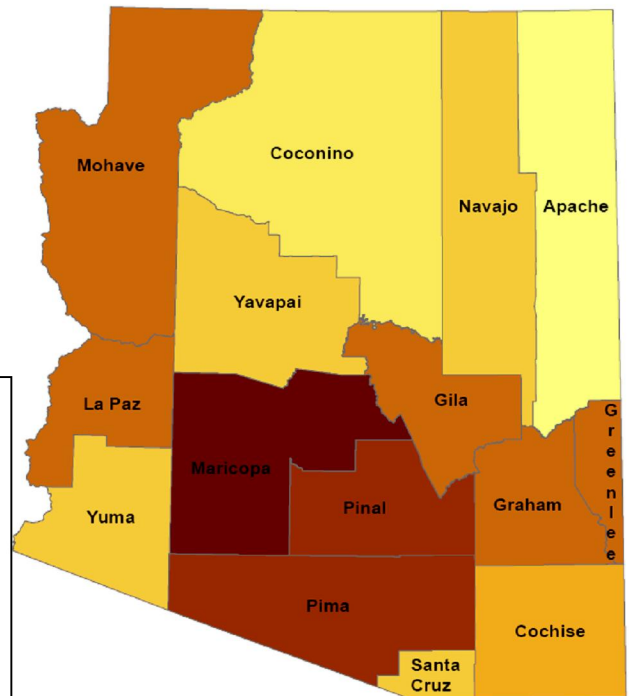


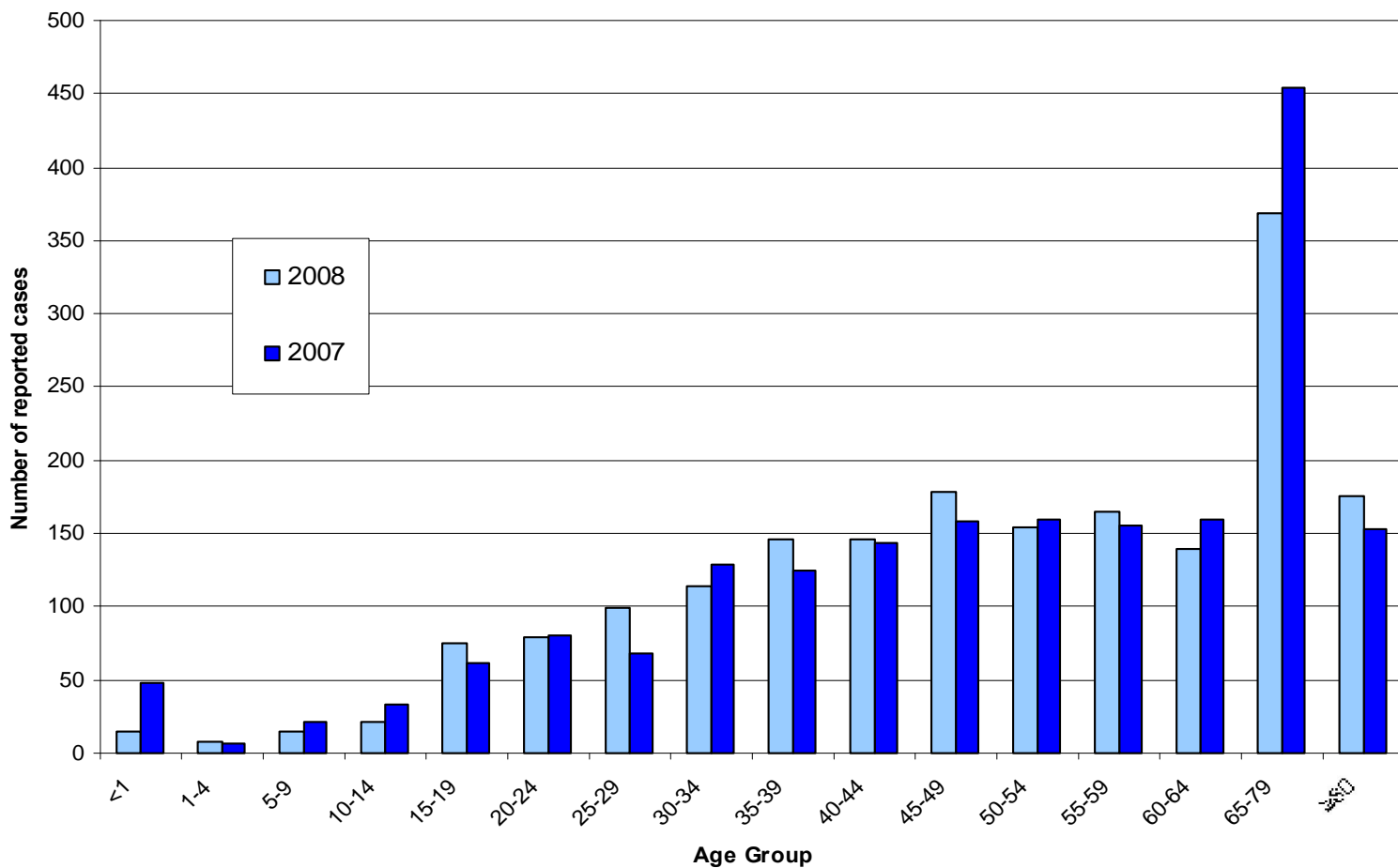
Table 1. Valley Fever Cases by County

COUNTY	MAY 2008	MAY 2007	YTD 2008	YTD 2007
APACHE	0	0	3	1
COCHISE	1	3	6	14
COCONINO	0	1	1	6
GILA	3	1	8	6
GRAHAM	1	1	4	14
GREENLEE	0	0	1	0
LA PAZ	1	0	2	6
MARICOPA	335	245	1432	1448
MOHAVE	3	4	15	26
NAVAJO	0	0	7	3
PIMA	45	72	306	298
PINAL	21	14	103	122
SANTA CRUZ	1	2	4	4
YAVAPAI	1	0	5	8
YUMA	1	1	4	7
TOTAL	413	344	1901	1963

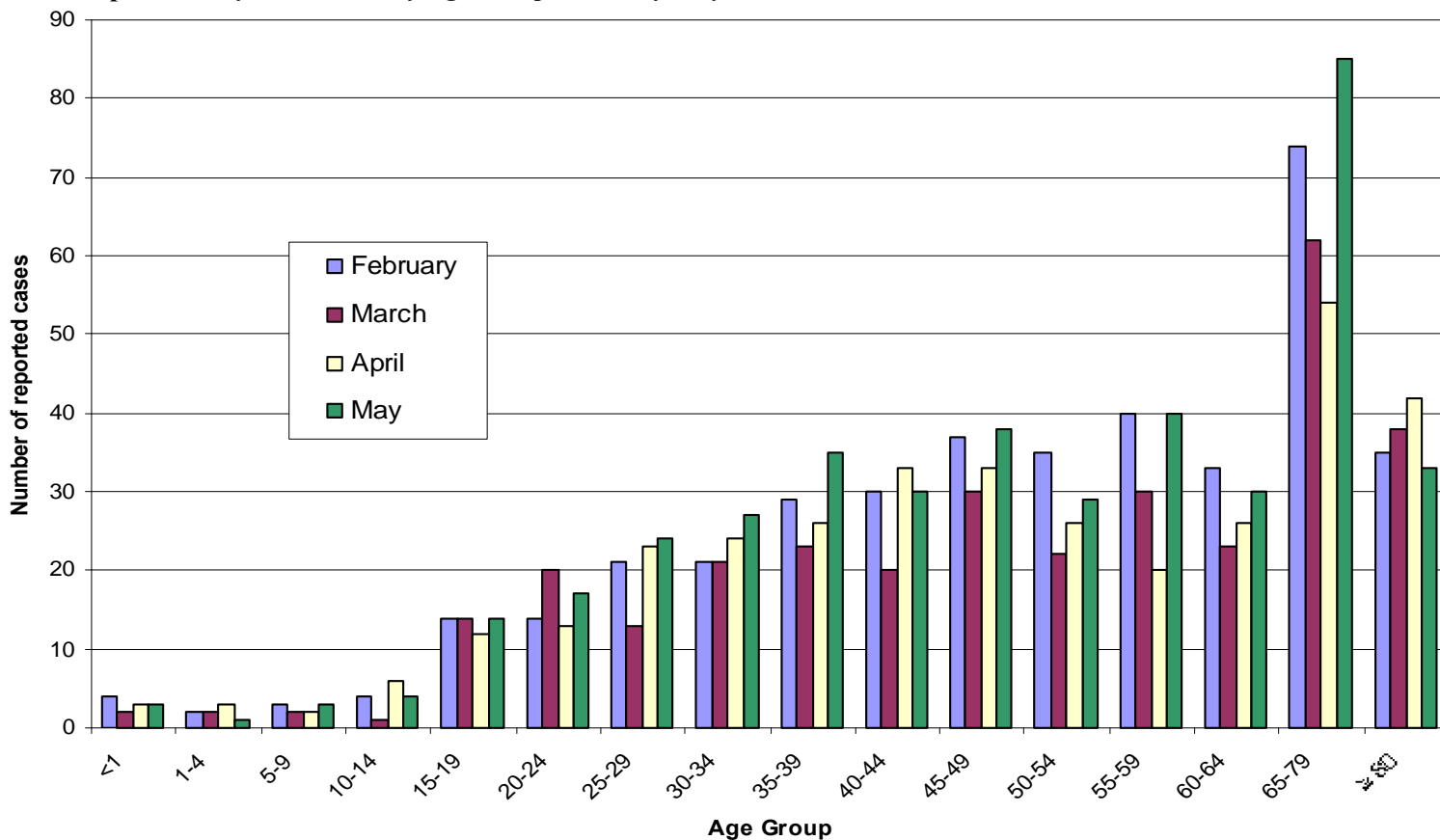
Valley fever cases continue to occur predominantly in the most populated counties of Maricopa, Pinal, and Pima.

Demographics of Valley Fever Cases:

Graph 1. Reported Valley Fever Cases by Age Group, YTD 2008 and YTD 2007



Graph 2. Valley Fever Cases by Age Group, February-May 2008



When comparing the number of cases and rates of valley fever by age group (see Graph 1 and 2), we see that the majority of cases continue to occur in people who are 65 years old or older. The average age of valley fever cases for 2007 was 51 (median = 52). We estimate that every year about 50,000 people in the United States (30,000 Arizonans) become ill with valley fever. Most of these cases experience mild flu-like symptoms and are less likely to visit healthcare providers, get tested, and be reported to the health department than people who are more severely ill.

Table 2. Valley Fever Cases with Known Race/ Ethnicity compared to Arizona Demographics

Race	May 2008 (n=106)	May 2007 (n=130)	YTD 2008 (n=566)	YTD 2007 (n=765)	2007 Demo* (n=6,432,007)
American Indian/ Alaska Native	5 (4.7%)	6 (4.6%)	27 (4.8%)	49 (6.4%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	4 (3.8%)	5 (3.8%)	11 (1.9%)	24 (3.1%)	169,780 (2.6%)
Black/African- American	7 (6.6%)	9 (6.9%)	40 (7.1%)	61 (8.0%)	253,477 (3.9%)
White	90 (84.9%)	110 (84.6%)	488 (86.2%)	631 (82.5%)	3,872,764 (60.2%)**

For year-to-date 2008, only 30% (566/1901) of the valley fever cases reported to the state health department contain information about race. African-Americans are more likely to be reported with valley fever as compared to the general population (Table 2).

Ethnicity	May 2008 (n=176)	May 2007 (n=301)	YTD 2008 (n=1302)	YTD 2007 (n=1759)	2007 Demo (n=6,432,007)
Hispanic	8 (4.6%)	17 (5.7%)	78 (6.0%)	113 (6.4%)	1,798,222 (28.0%)
Not Hispanic	43 (24.4%)	70 (23.3%)	279 (21.4%)	355 (20.2%)	4,633,785 (72.0%)
Unknown	125 (71.0%)	214 (71.1%)	945 (72.6%)	1291 (73.4%)	—

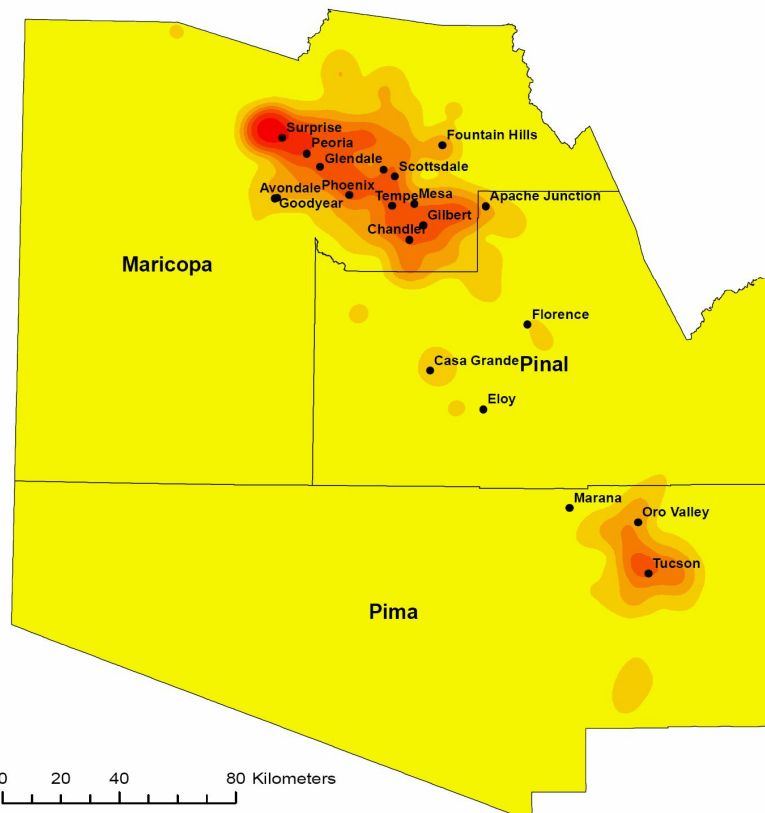
*Arizona Vital Statistics uses five categories for race/ethnicity: American Indian or Alaska Native, Asian or Pacific Islander, Black or African-American, White non-Hispanic and Hispanic or Latino ethnicity. Demo = demographics

**For 2007 demographics for the state of Arizona, white means white non-Hispanic.

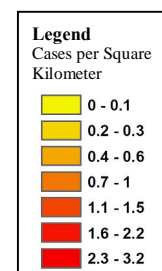
Areas with Valley Fever Activity:

Map 3.

Density Map of Valley Fever Incidence in Maricopa, Pinal & Pima Counties, 2006



Map 3 measures valley fever incidence per square kilometer for the year 2006. We are working on a density map for 2007 in our efforts to identify prominent areas of valley fever incidence. Valley fever cases occur primarily in populated areas, most notably in the counties of Maricopa, Pinal, and Pima.

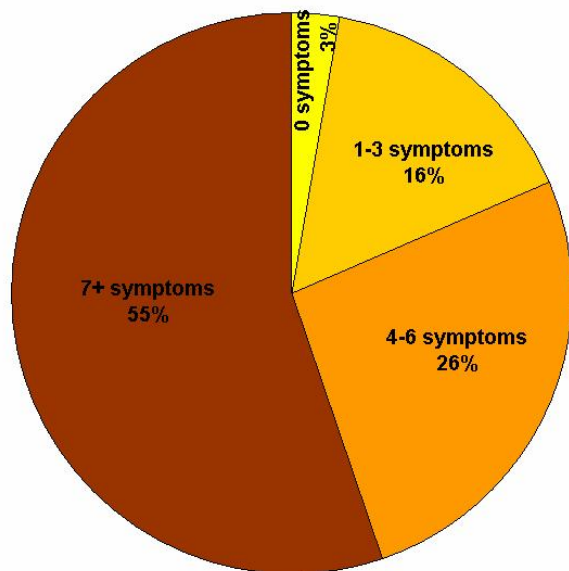


Enhanced Surveillance of Valley Fever:

The Arizona Department of Health Services is carrying out enhanced surveillance measures to investigate valley fever. Our aim is to interview every 10th valley fever case that is reported. So far we have interviewed 492 cases. This report highlights some of the major findings of this project.

Symptoms and Pre-existing Conditions:

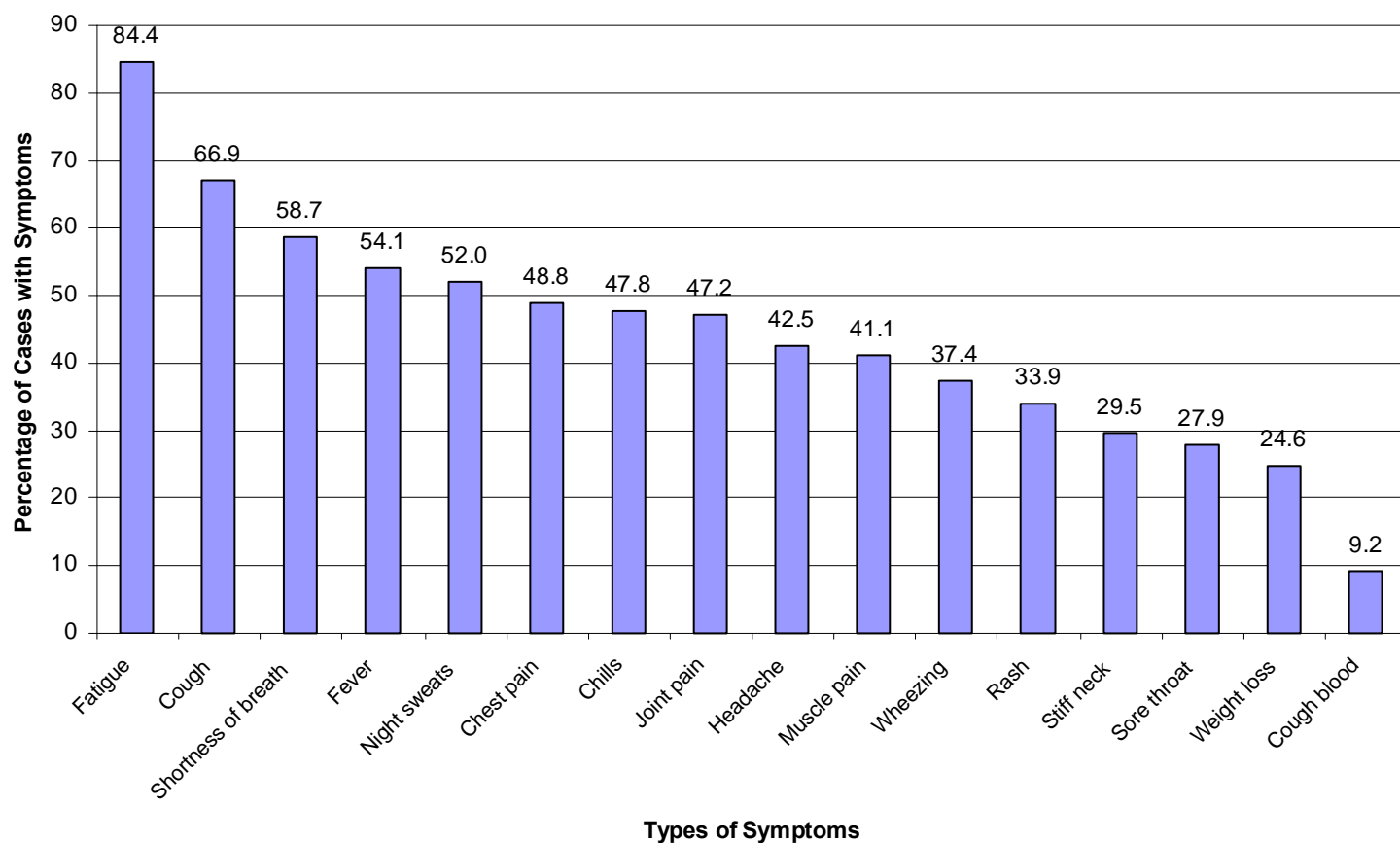
Graph 3. Distribution of Symptoms in Valley Fever Cases*



As shown in Graph 3, 55% of cases interviewed had seven or more symptoms for valley fever. The percentages of cases who reported experiencing some of the most common symptoms of valley fever are shown below in Graph 4. 84% had fatigue and 67% had a cough. Previous data show that 60% of people who are infected with *Coccidioides* species have mild or no symptoms. Thus, people who have symptoms are more likely to visit providers, get tested for valley fever and be reported to the health department. For this reason, our data is more likely to include the most severe cases of coccidioidomycosis.

*The graphs only include the common symptoms of fever, cough, sore throat, wheezing, chills, dyspnea (shortness of breath), night sweats, chest pain, fatigue, hemoptysis (coughing up blood), headache, rash, stiff neck, myalgias (muscle pain), arthralgia (joint pain), and weight loss.

Graph 4. Common Symptoms of Valley Fever Cases*



Diagnosis and Healthcare Visits:

We evaluated where valley fever cases were seen for their illness and how often they sought medical care. As shown in Table 5, 44% of patients reported going to the emergency room at least once over the course of their illness, and 40% said that they were hospitalized overnight for their illness. People with valley fever waited an average of 45 days before seeking care for their symptoms. It took an average of 3 visits to a healthcare provider before a patient was tested for valley fever. 16% of patients asked their providers to test them for valley fever. 28% of patients saw their doctors more than ten times for their valley fever illness (Graph 5). Prior to the most recent diagnoses of valley fever, 10% of patients interviewed had been told that they had valley fever before. 45% of patients were told that they had pneumonia and 58% were treated with antibiotics. 59% of patients were treated with anti-fungals.

Table 3.
Location where Cases First Sought
Treatment for Valley Fever

Location	Count (n=492)
Emergency room	111 (22.6%)
Primary care physician	274 (55.7%)
Urgent Care	55 (11.2%)
Other	28 (5.7%)
Unknown	24 (4.9%)

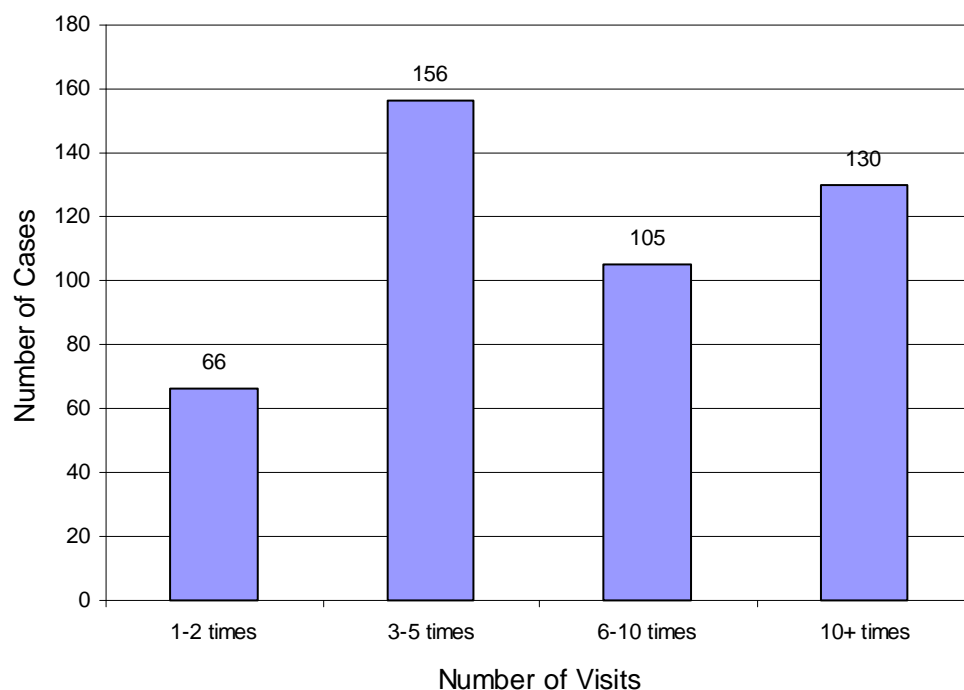
Table 4.
Length of Antibiotic Treatment

Length of treatment	Count (n=302)
Less than 1 week	68 (23.2%)
1-2 weeks	117 (38.6%)
3-4 weeks	41 (14.0%)
1-2 months	19 (6.5%)
Greater than 2 months	20 (6.1%)
Unknown	37 (11.6%)

Table 5.
Specifics of Healthcare Visits

Healthcare Visit (n=492)	Yes	No	Unknown
Visited the emergency room for illness	215 (43.7%)	252 (51.2%)	25 (5.0%)
Hospitalized overnight for illness	198 (40.2%)	277 (56.3%)	17 (3.5%)
Chest x-ray performed by provider	437 (88.8%)	39 (7.9%)	16 (3.3%)
Provider informed patient of pneumonia	223 (45.3%)	243 (49.4%)	26 (5.3%)
Patient knew of diagnosis before contacted by ADHS	393 (79.9%)	66 (13.4%)	33 (6.7%)
Patient asked provider to test for valley fever	78 (15.9%)	394 (80.1%)	20 (4.1%)
Provider prescribed antibiotic for illness	287 (58.3%)	141 (28.7%)	64 (13.0%)
Provider prescribed antifungal for illness	290 (58.9%)	176 (35.8%)	26 (5.3%)

Graph 5.
Number of Times Valley Fever Cases Visited a Healthcare Provider over the
Course of Illness



Impact of Valley Fever and Exposures:

Individuals reported that the average length of their symptoms was 181 days (median = 108) (Table 6). However, 55% of the patients had not yet recovered from their symptoms of valley fever at the time of the interview. Of those that have not yet recovered, the average length of symptom duration was 259 days (median = 148). 46% of the cases interviewed had a paid job or business and 13% were attending school when their illnesses began. Of those who had jobs, 74% missed work due to their illnesses, and 62% of those who were attending school missed school due to their illnesses. 74% of the people interviewed said that their illnesses prevented them from doing their usual daily activities. On average, the amount of time missed from performing daily activities was three months (90 days). 51% said they were exposed to dust through their work or daily activities. Most of the cases (73%) said that they spent at least 2 hours a week outdoors (Table 7). 56% of people diagnosed with valley fever said that they lived within one mile of construction.

Table 6.
Symptom Duration and Number of Days Lost for Valley Fever Cases

Impact of Valley Fever	n	Mean	Median
Symptom duration (days) for those who recovered	167	63.9	42
Symptom duration (days) for those not yet recovered	250	258.7	148
Symptom duration (days) for both recovered and not yet recovered	417	180.7	108
Number of days missed from work	159	30.9	14
Number of days missed from school	37	16.4	9
Number of days missed from daily activities	375	89.9	45

Table 7.
Length of Time Spent Outdoors for Valley Fever Cases

Length of Time/Week	Count (n=492)
<2 hrs	50 (10.1)
2-20 hrs	244 (49.6%)
20-40 hrs	77 (15.7%)
>40 hrs	38 (7.7%)
Unknown	83 (16.9%)

Table 8.
Dust Exposures for Valley Fever Cases

Exposed	Count (n=284)
Constantly	52 (18.3%)
Intermittently/Sometimes	179 (63.0%)
Rarely	53 (18.7%)

Table 9.
Years Lived in Arizona & Average Age of Cases Interviewed

Demographics	n	Mean	Median
Number of years lived in Arizona	448	16.4	12
Age of cases interviewed	492	52.3	54

Demographics and Valley Fever Awareness:

53% of patients interviewed were male. 57% had a history of smoking. 18% had malignant disease, cancer, HIV/AIDS or transplant as an underlying medical condition present at time of diagnosis. Although the average number of years lived in Arizona at the time of diagnosis was 16 years (Table 9), 40% lived in Arizona for less than 10 years (Graph 6). Our data suggest that those who are newer to the Arizona area are more likely to be reported with valley fever. However, many of our cases lived 10 years or longer in Arizona (Graph 6) indicating that other factors may be important in becoming infected with the *Coccidioides* fungus. Table 9 shows that the average age of the cases interviewed was 52 years old, which is comparable to the average age of reported cases in 2007 (51 years old).

Graph 6.
Length of Time that Valley Fever Cases Lived in Arizona Prior to Diagnosis

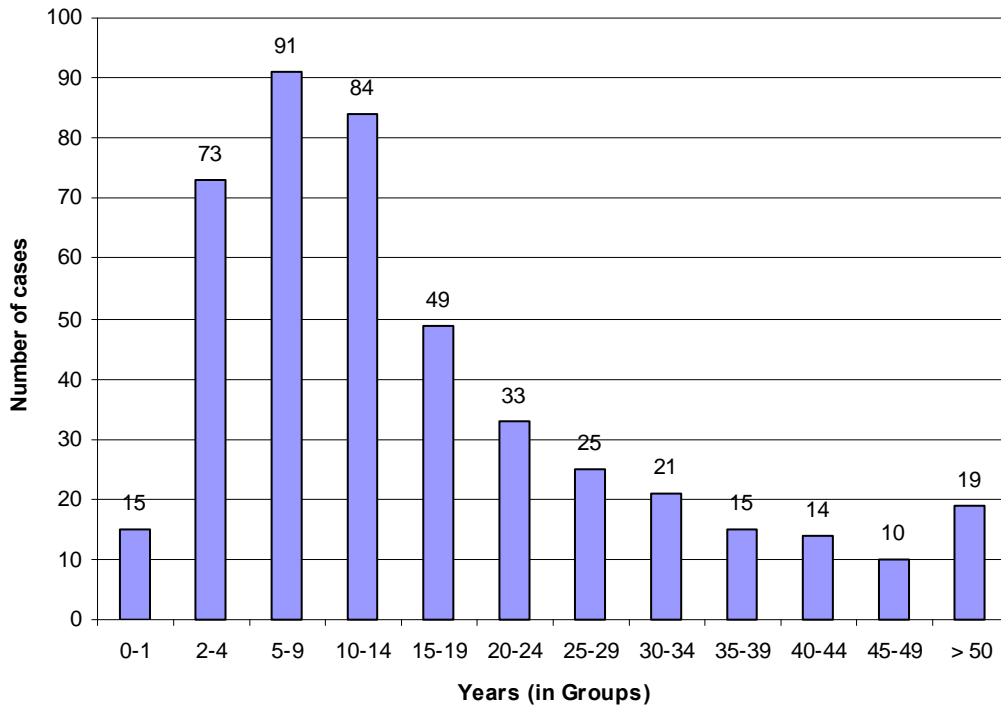


Table 10.
Race and Ethnicity of Valley Fever Cases compared to State Demographics

Race	Cases Interviewed (n=492)	Reported Cases in 2007 (n=1726)*	2007 Demo** (n=6,432,007)
American Indian/Alaska Native	11 (2.2%)	95 (5.5%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	21 (4.3%)	52 (3.0%)	169,780 (2.6%)
Black/African-American	36 (7.3%)	136 (7.9%)	253,477 (3.9%)
White	384 (78.0%)	1443 (83.6%)	3,872,764 (60.2%)*
Other	29 (5.9%)	—	—
Unknown	11 (2.2%)	—	—

Ethnicity	Cases Interviewed (n=492)	Reported Cases in 2007 (n=4334)*	2007 Demo (n=6,432,007)
Hispanic	63 (12.8%)	277 (6.4%)	1,798,222 (28.0%)
Not Hispanic	418 (85.0%)	872 (20.1%)	4,633,785 (72.0%)
Unknown	11 (2.2%)	3185 (73.5%)	—

In Table 10, we see that only 2% of cases interviewed during our enhanced surveillance were American Indians compared to the 5% incidence of American Indian valley fever cases. This may suggest the need to communicate with Indian Health Services and other related agencies to identify and interview more American Indians. 90% of the people interviewed had health insurance when they were seeking medical treatment for their illnesses whereas 82% of the Arizonan population is insured (U.S. 2000 Census Data). 65% of the cases said they knew about valley fever before they were diagnosed. Of the people who had previous knowledge about valley fever, only 5% learned about valley fever from their healthcare providers. At the time of the interview, 19% of cases did not know how the disease is contracted.

*Number of cases with race or ethnicity reported to state
 **Arizona Vital Statistics uses five categories for race/ethnicity: American Indian or Alaska Native, Asian or Pacific Islander, Black or African-American, White non-Hispanic and Hispanic or Latino ethnicity. Demo = demographics
 ***For 2007 state demographics, white means white non-Hispanic.

Further analysis will be done as we complete more interviews and receive more reports.